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EFFECTS OF CONSTRUCTION AND STAGED FILLING OF RESERVOIRS ON THE ENVIRONMENT AND ECOLOGY

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Type II Progress Report for period
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TYPE II PROGRESS REPORT (For the period 9 December 1973 - 8 June 1974)

TITLE: Effect of Construction and Staged Filling of Reservoirs on the Environment and Ecology MMC #341

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GSFC ID NUMBER: DE 335

OBJECTIVE:

To study the environment and ecological impact of the construction and operation of Springer-Sangamon Reservoir and Friends Creek Impoundment located on the Sangamon River in East Central Illinois.

Introduction

During this report period, most of the research effort was directed towards development and testing of the modified LARS program. Construction of the reservoir is still uncertain but work is progressing on the interpretation of the pre-project environment. Ground truth data is being received for correlation with imagery and photographic data.

The main features of the modified LARS program will be outlined in this report. Progress in testing the interpretation and change detection systems will be discussed.

There have been several presentations of research information during this report period. Descriptions of these presentations are given.

Ditigal Classification and Mapping Program. The consultant group at the University of Illinois has developed a modified version of the Purdue University (LARS) program. The modified LARS program is fully operational. Nine (9) CCT tapes were requested and received for testing

of the program. Thedigital classification for the 2 October 1972 ERTS-1 CCT is complete but further testing remains to be done. The main features of the program are the following:

a. The program has multiple input capabilities. It can utilize either digital information directly from the ERTS-1 CCT's or optically processed and analyzed imagery.

b. The program will perform two major operations: (1) manipulate the raw data in a manner analogous to photographic enhancement (i.e., tonal slicing, edge grade enhancement), and (2) combine the data using clustering and discriminate function algorithms for multivariate normal classifications.

c. The program has multiple outputs: (1) it can produce line printed maps, (2) CalComp plots, with optional coloring routines, or (3) logical overlays of maps for change detection.

Ground Truth. The University of Illinois, Springer-Sangamon Environmental Research Program (SSERP) is the source of ground truth information for this ERTS-1 project. Under a contract signed by the Corps of Engineers Chicago District Office (CDO) and the University of Illinois, ground truth data is to be prepared in an acceptable format for correlation with imagery and/or photographic data. Initial ground truth information has been received but not in an acceptable format. When the difficulties have been resolved, correlation will proceed.

Analysis of Pre-Project Environment. A mosaic of the study area using photographs obtained from the CDO at a scale of 1:12000 has been prepared.

It will be used to assist in the correlation of ground truth and to evaluate the classifications derived through the optical and digital analysis of ERTS imageries.

Five seasonal images are used in the final phases of the study. Interpretations are primarily conducted through the use of enhanced imagery and the interpretation system described in earlier reports. Correlation of interpretation to ground truth await the receipt of suitable ground truth information.

Dissemination of Research Results. Three presentations were made during the report period in which information derived from the study was reported. A description of the presentations is given in the following:

Date: 10 April 1974

Subject: Remote Sensing Projects at the University of Illinois

Speaker: Mr. J. R. Eyton, University of Illinois

Location: Illinois-Indiana Chapter
Great Lakes Region
American Society of Photogrammetry
Spring Technical Meeting
Urbana, Illinois

Date: 16 April 1974

Subject: Investigation of the Effects of Construction and Staged Filling of Reservoirs on the Environment and Ecology*

Speaker: Mr. R. E. Riggins, CERL

Location: 9th International Symposium on Remote Sensing of the Environment
Ann Arbor, Michigan

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* Paper published in proceedings.

Date: 27 April 1974

Subject: Sensing and Camera Systems

Speaker: Mr. J. R. Eyton, University of Illinois

Location: Remote Sensing Workshop
American Association of Geographers
Seattle, Washington